The Healthy Young Men's Cohort: Health, Stress, and Risk Profile of Black and Latino Young Men Who Have Sex with Men (YMSM)

Michele D. Kipke · Katrina Kubicek · Ifedayo C. Akinyemi · Wendy Hawkins · Marvin Belzer · Sandesh Bhandari · Bethany Bray

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Abstract Young men who have sex with men (YMSM), especially YMSM of color, are at increased risk for a wide range of threats to their health and well-being. In this study, we recruited and surveyed an urban sample of 448 young African American/Black (Black), Hispanic/Latino (Latino), and multi-racial/ethnic YMSM, ages 16–24 years (mean = 22.3 years), about stressful life events, their health and mental health, their access to and utilization of care, and their involvement in risk-related behaviors. We found that the majority reported experiences of racism (87%) and homophobia (76%). A high percentage reported food insecurity/hunger (36%), residential instability (15%), financial hardship (63%), and conflict with family/friends (62%). The prevalence of risk behaviors was also high, including recent use of tobacco (46%), alcohol (88%), and marijuana (72%), and 41% tested positive for 1+ drugs. Furthermore, 26% tested positive for 1+ sexually transmitted infections (STIs). Over half (56%) reported

being worried about their health, 33% reported having a chronic health condition and 31% a mental health condition, and 45% had wanted/needed mental health services during the past year. Further, 17% reported suicidal ideation/had planned a suicide attempt and 26% had ever engaged in self-injurious behaviors. Significant differences by race/ethnicity and HIV status included residential status/food insecurity, type of racism/homophobia, drug use, and STIs. These findings demonstrate how vulnerable this population is with respect to a wide range of structural and social determinants of health that may be important drivers of behavioral, health, mental health outcomes, and potentially long-term health disparities.

Keywords Racism · Homophobia · Discrimination · Stressful life events · Drug use · Marijuana use · STIs · HIV · Health · Depression · Anxiety · YMSM

M. D. Kipke · K. Kubicek (✉) · I. C. Akinyemi · W. Hawkins · M. Belzer
Children's Hospital Los Angeles, 4650 Sunset Blvd, MS#30, Los Angeles, CA 91030, USA
e-mail: kkubicek@chla.usc.edu

M. D. Kipke · M. Belzer
Departments of Pediatrics and Preventive Medicine, Keck School of Medicine, University of Southern California, Los Angeles, CA, USA

S. Bhandari · B. Bray
The Methodology Center, Penn State University, State College, PA, USA

Introduction

Today there is a generation of Black/African American (Black) and Hispanic/Latino (Latino) young men who live in diverse urban communities and experience ongoing threats and challenges to their health and wellbeing [1–4]. Some of these challenges arise from experiences of racism and discrimination [5–7], and exposure to violence and victimization [8–10], especially for those living in urban communities with high rates of poverty, unemployment, crime, illicit drug use, and sexually transmitted infections (STIs) [11, 12].

Moreover, in communities that offer limited educational and/or employment opportunities, there is often a pervasive sense of hopelessness and despair, which in turn can lead to increased use of tobacco [13–15], alcohol, and illicit drugs [16, 17], as well as involvement in high-risk sexual behaviors [18–22], and mental health problems, such as depression, anxiety, and suicidal ideation [22, 23].

For young men who have sex with men (YMSM)¹, especially YMSM of color, the threats and risks are even greater, with many of these youth experiencing multiple forms of stigma [24–28] and “minority stress” (e.g., racism, homophobia, internalized homophobia) [29–31] with limited family and social support to buffer against these threats [32–35]. As a result, these young people are at exceedingly high risk for a wide range of adverse physical, emotional, and behavioral outcomes [24, 26, 27, 36–38]. For example, YMSM are significantly more likely to use tobacco, alcohol, and illicit drugs compared to their heterosexual peers [39–48]. YMSM are also more likely to experience mental health problems, including affective disorders [49] and suicidal ideation [23, 50–53], but those who experience racial discrimination, homophobia, and gay-related stigma are at greatest risk for depression and anxiety compared to their heterosexual peers [29, 54, 55]. In addition, YMSM of color are at particularly high risk for alcohol misuse and illicit drug use if they have experienced violence, discrimination, and/or harassment [31, 56–59].

YMSM of color also have the highest rates of STIs, including infection with the human immunodeficiency virus (HIV) [60, 61]. YMSM account for 60% of all new infections among Black men who have sex with men (MSM) and 45% of new HIV infections among Latino MSM [60, 61]. Millett et al. suggest that HIV-related racial disparities that persist among YMSM can be explained by complex and interconnected factors, such as greater prevalence of STIs and unrecognized STI/HIV infection; disparities in access to and use of HIV testing, care, and treatment; and social/structural barriers such as income, unemployment, and discrimination [62, 63].

This paper describes a large and diverse cohort of Black, Latino, and multi-racial/ethnic YMSM recruited

as part of the Healthy Young Men’s (HYM) Cohort Study. These young men live in ethnically/racially diverse, low-income communities located throughout Los Angeles County. This paper provides a portrait of these young people’s lives with respect to the types of stressful life events they experience, as well as their physical, emotional, and behavioral health, including their use of licit and illicit substances, rates of infection of STIs, the presence of one or more chronic health conditions, and their mental health.

Methods

Healthy Young Men’s Cohort Study

The Healthy Young Men’s (HYM) Cohort Study is a longitudinal study (baseline, 6-month follow-up assessments) conducted with a cohort of 448 Black, Latino, or multi-racial/ethnic (i.e., they identify in part as Black and/or Latino) YMSM. The study design, described elsewhere [64], involved recruitment of YMSM in Los Angeles, CA, using both venue-based and social media recruitment strategies from May 2016 through September 2017. Our recruitment strategy included recruitment of both YMSM living with HIV (YLWH, $n = 51$) and HIV-negative (HIV-, $n = 397$). Young men were eligible to participate in the study if they [1] were 16 to 24 years old [2]; were assigned a male sex at birth [3]; self-identified as gay, bisexual, or uncertain about their sexual orientation [4]; reported a sexual encounter with a man within the previous 12 months [5]; self-identified as African American/Black, Hispanic/Latino, or multi-racial/ethnic; and [6] lived in Los Angeles or a surrounding county with no expectation of moving outside of this area for at least 6 months. The recruitment strategy resulted in a geographically dispersed cohort recruited from throughout Los Angeles County. Once identified, all youth were screened for eligibility and, if eligible, were invited to participate in the study. Participants provided written informed consent during a face-to-face consenting visit. In this paper, we present data collected during the first 90-min (baseline) assessment. This study received Institutional Review Board approval from XX.²

¹ YMSM is used here to denote behavior as opposed to identity as YMSM is inclusive of young men who have sexual attractions to other men regardless of sexual identity (e.g., gay, bisexual, queer).

² Name of IRB is blinded for peer review. The name will be provided upon acceptance of the manuscript.

Measures

Demographic Characteristics Demographic data collected included age, race/ethnicity, religion, residence and residential stability, education/employment, food security/hunger, and insurance status.

Racism, Homophobia, and Stressful Life Events Experiences of racism and discrimination were captured using 20 items from Diaz and Ayala's scale, which measures participants' experiences of social discrimination (racism, police brutality, discrimination due to sexual identity) as adults [25, 65]. Participants were given a list of stressful life events and asked if they had experienced it during the previous 6 months; they were also asked to rate, on a scale from 1 to 10, the severity of each stressful life event. From this, we calculated the total number of stressful events.

Health, Mental Health, Healthcare, and Linkage to Care Participants were asked questions about their insurance status and source of insurance, access to healthcare (i.e., have a place to go for health care, have a primary care provider). They were also asked about their overall health, whether they were worried about their health, and any chronic health conditions using modified questions from the Youth Risk Behavior Survey [66]. Other health conditions included insomnia, suicidal ideation/attempt, self-injurious behavior, and whether they needed/wanted mental health services during the previous year. Depression, anxiety, and somatization were measured using the 18-item Brief Symptom Inventory (BSI) [67].

Alcohol, Tobacco, Marijuana, and Illicit Drug Use Scales from the Monitoring the Future and the 2014 National Survey on Drug Use and Health study are used to assess lifetime, past 6-month, and past 30-day illicit and illicit substance use [68, 69]. Substances included alcohol, tobacco, marijuana, cocaine or crack, heroin, ecstasy, methamphetamines, GHB, ketamine, poppers, inhalants, hallucinogens, and prescription drugs used without a physician's order. We also collected urine samples from each participant to test for metabolites of methamphetamines, cocaine, ecstasy, marijuana, and opiates using the Integrated E-Z Split Key Cup II- 5 Panel (Innovacon Laboratories; San Diego, CA), which can detect drugs used during the previous 1 to 4 days except for chronic marijuana use, which can be detected for up to 30 days [70, 71].

Problem Marijuana and Alcohol Use To assess the severity and frequency of participants' alcohol use, we use the Alcohol Use Disorders Identification Test (AUDIT) [72, 73]. For this 10-item scale, participants are asked to respond based on their alcohol use in the past 6 months. Problems resulting from marijuana use are measured by 13 items based on the DSM IV and DSM V criteria for abuse and dependence. These items were also used in a cohort study focused on medicinal marijuana use among young adults.

STI/HIV Diagnosis and Test Result Participants were asked to report any history of STI testing and whether they had previously tested positive for gonorrhea, syphilis, chlamydia, herpes, human papillomavirus, hepatitis A, B, and C, and scabies. The number of times they have tested positive for these infections is also reported. They were also asked to self-collect urine, rectal and pharyngeal specimens for *Neisseria gonorrhea* as well as urine and rectal *Chlamydia trachomatis* using a nucleic acid amplification test. Syphilis testing was performed using whole blood collected via venipuncture using a rapid plasma regain and treponemal antibody test (Cardinal Health; Dublin, OH). Participants were also asked their HIV status, and HIV testing was performed using 4th generation point-of-care rapid whole blood finger-stick HIV test (Alere, Inc., Waltham, MA), an FDA-approved diagnostic measure of HIV-1 p24 antigen and HIV-1/2 antibodies.

Analytic Plan

Descriptive statistics and corresponding statistical tests for group comparisons were calculated for baseline characteristics, discrimination experiences, stressful life events, substance use, and health and health care experiences. Most variables were categorical and frequencies of responses for the overall sample and by HIV status and race/ethnicity are presented in Tables 1, 2, 3, and 4. Group comparisons for HIV status and race/ethnicity were explored using Pearson chi-square tests for contingency tables. Means and standard deviations and overall *F* tests from one-way analyses of variance are presented for the remaining continuous variables (i.e., age, discrimination experiences subscales, and stressful life events scale). Table notes have been included to clarify where some data points were excluded from analyses due to missingness.

Results

Demographic Characteristics

As presented in Table 1, the mean age of the cohort was 22.3 years with nearly three quarters (72%) being 21–25 years of age (all participants were 24 years or younger at time of consent but may have turned 25 by the time they completed the baseline assessment). About 59% of the participants identified as Latino, 21% as Black, and 20% multi-racial/ethnic, which closely aligns with the demographic profile of residents of Los Angeles County [74]. In addition, nearly half of the cohort (48%) reported living at home with their family although Latino participants were significantly more likely to be living with family, while YLWH were significantly less likely to be living with family (both at $p < .01$). A third of the cohort (37%) reported having been in a primary partner relationship during the previous 6 months; primary partner was defined as someone you consider yourself to be in a relationship with (e.g., boyfriend, girlfriend, life partner). In terms of sexual identity, 79% self-identified as gay/other same sex attracted and 17% reported being bisexual; 69% reported being sexually attracted to men only and 28% reported being attracted to both men and women.

Participants reported having experienced considerable challenges at the time of their assessment. Sixteen percent of participants reported involvement in sex exchange (e.g., for food, a place to stay, money, drugs) during the previous 6 months. Thirty-six percent reported food insecurity and/or hunger (e.g., ate less or skipped meals because there was not enough money, hungry because there was not enough food) within the previous 12 months, and 54% reported having run out of money to meet their basic needs (e.g., food, rent, electricity, gas) during the previous 3 months.

Discrimination and Stressful Life Events

As presented in Table 2, the vast majority of participants reported having ever experienced racism (87%) and homophobia (76%), with Black and multi-racial/ethnic participants being significantly more likely to have experienced *sexualized racism* (e.g., feeling objectified, having trouble finding dating partners because of race/ethnicity) and *institutional racism* (e.g., turned down for a job because of race/ethnicity) compared to Latino participants (both at $p < .01$). Participants also

reported a considerable number of stressful life events, most notably stress associated with financial problems (63%), conflict with family (62%), conflict with a partner (40%) or a close friend (37%), and difficulties with people at work (36%). HIV-negative and Latino participants were more likely to report conflicts with family (both at $p < .05$). Further, 35% reported stress associated with their family having financial problems.

Tobacco, Alcohol, Marijuana, and Illicit Drug Use

As presented in Table 3, the majority of participants reported both lifetime and past 6-month use of alcohol (94% and 88%, respectively), tobacco (73% and 46%, respectively), and marijuana (85% and 72%, respectively). In California, marijuana is legally available for recreational use by adults 21 years and older. In this cohort, we found nearly a quarter (22%) of the total participants were under 21 and reported use of marijuana. In addition, nearly a third of participants (31%) reported having used some other illicit drug during the past 6 months (e.g., cocaine/crack, heroin, ecstasy, methamphetamines, GHB, ketamine, poppers, inhalants, hallucinogens, prescription drugs). YLWH and Latino participants were significantly more likely to report past six month use of poppers, a drug commonly used during sex ($p < .01$), and Black participants were significantly more likely to report past 6-month use of marijuana ($p < .01$).

In addition, nearly half of the sample (49%) tested positive for using one or more substances, primarily marijuana, with YLWH being significantly less likely to test positive for drug use and Black participants being more likely to test positive for marijuana use ($p < .01$). Furthermore, nearly half of participants (42%) reported alcohol misuse as scored by AUDIT (e.g., needing advice/help related to their use of alcohol) and over a third (39%) reported problematic use of marijuana.

Access to Care, Health Status, Mental Health, and Health-Related Stress

While the majority of participants reported being in good, very good, or excellent health (70%), over half of the participants (56%) reported being worried about their health or body, as presented in Table 4. Moreover, a third (33%) reported having a chronic health condition; the three most common chronic health conditions included asthma (15%), HIV (11%), and herpes (3%).

Table 1 Baseline characteristics by HIV status and race/ethnicity (*N* = 448)

Variable	Categories	Wave 1 (<i>N</i> = 448)	HIV negative (<i>n</i> = 397)	HIV positive (<i>n</i> = 51)	<i>p</i> value	Black (<i>n</i> = 94)	Latino (<i>n</i> = 264)	Multi-racial/ethnic (<i>n</i> = 90)	<i>p</i> value
Age ^a	Mean (SD) (range = 16–25)	22.30 (2.02)	22.26 (2.04)	22.55 (1.84)	0.35	22.79 (1.96)	22.09 (2.02)	22.40 (2.00)	0.01
	16–17 years	11 (2)	10 (3)	1 (2)	0.56	0 (0)	9 (3)	2 (2)	0.30
	18–20 years	114 (25)	104 (26)	10 (20)		20 (21)	70 (27)	24 (27)	
	21–25 years	323 (72)	283 (71)	40 (78)		74 (79)	185 (70)	64 (71)	
Race/ethnicity	Black	94 (21)	77 (19)	17 (33)	0.07				
	Latino	264 (59)	239 (60)	25 (49)					
	Multiracial/ethnic	90 (20)	81 (20)	9 (18)					
Residential status (most nights)	Family	213 (48)	196 (49)	17 (33)	<	27 (29)	153 (58)	33 (37)	<
	Own place/apartment	166 (37)	149 (38)	17 (33)	0–	43 (46)	87 (33)	36 (40)	0–
	With friends/partner	49 (11)	37 (9)	12 (24)	01	18 (19)	19 (7)	12 (13)	01
	No regular place/other	20 (4)	15 (4)	5 (10)		6 (6)	5 (2)	9 (10)	
Relationship status (last 6 months)	In primary partner relationship	167 (37)	154 (39)	13 (25)	0.06	30 (32)	102 (39)	35 (39)	0.48
Sexual identity	Gay/other same sex	354 (79)	309 (78)	45 (88)	0.22	72 (77)	211 (80)	71 (79)	0.22
	Bisexual	74 (17)	69 (17)	5 (10)		16 (17)	46 (17)	12 (13)	
	Others/do not know	20 (4)	19 (5)	1 (2)		6 (6)	7 (3)	7 (8)	
Sexual attraction ^b	Attracted to males only	309 (69)	276 (70)	33 (66)	0.65	60 (65)	182 (69)	67 (76)	0.68
	Attracted to females only	8 (2)	7 (2)	1 (2)		2 (2)	5 (2)	1 (1)	
	Attracted to both	125 (28)	110 (28)	15 (30)		30 (32)	76 (29)	19 (22)	
	Attracted to neither	3 (1)	2 (1)	1 (2)		1 (1)	1 (0)	1 (1)	
Sex exchange	6 months	72 (16)	59 (15)	13 (25)	0.05	15 (16)	42 (16)	15 (17)	0.99
Food security (last 12 months)	Food security	284 (63)	254 (64)	30 (59)	0.68	47 (50)	181 (69)	56 (62)	0.02
	Food insecurity	109 (24)	96 (24)	13 (25)		33 (35)	56 (21)	20 (22)	
	Hunger	55 (12)	47 (12)	8 (16)		14 (15)	27 (10)	14 (16)	
Basic needs (last 3 months)	Did not run out money	208 (46)	193 (49)	15 (29)	0.04	37 (39)	130 (49)	41 (46)	0.08
	1–3 times a month	215 (48)	184 (46)	31 (61)		52 (55)	122 (46)	41 (46)	
	1+ a week	23 (5)	18 (5)	5 (10)		5 (5)	12 (5)	6 (7)	
	Unknown	2 (0)	2 (1)	0 (0)		0 (0)	0 (0)	2 (2)	

^a 10 participants were 24 at the time of consent and enrollment but turned 25 by the time baseline was completed^b 3 participants were excluded because they answered “Don’t know” about sexual attraction to either males or females or both

Table 2 Discrimination and stressful life events by HIV status and race/ethnicity ($N = 448$)

Variables	Wave 1 ($N = 448$)	HIV negative ($n = 397$)	HIV positive ($n = 51$)	Black ($n = 94$)	Latino ($n = 264$)	Multi-racial/ethnic ($n = 90$)	p value
	n (%)	n (%)	n (%)	n (%)	n (%)	n (%)	
Any racism (lifetime)	390 (87)	348 (88)	42 (82)	85 (90)	224 (85)	81 (90)	0.25
Any homophobia (lifetime)	339 (76)	307 (77)	32 (63)	69 (73)	200 (76)	70 (78)	0.79
	$m(sd)$	$m(sd)$	$m(sd)$	$m(sd)$	$m(sd)$	$m(sd)$	
Discrimination ^a (lifetime, range = 0–3)							
Racism—sexualized ^b	0.83 (0.73)	0.83 (0.73)	0.84 (0.77)	1.11 (0.82)	0.67 (0.61)	1.02 (0.83)	< .01
Racism—institutionalized	0.47 (0.58)	0.46 (0.57)	0.57 (0.65)	0.73 (0.71)	0.34 (0.41)	0.60 (0.70)	< .01
Homophobia—harassment	0.16 (0.35)	0.14 (0.32)	0.26 (0.56)	0.13 (0.31)	0.14 (0.33)	0.21 (0.44)	0.22
Homophobia—shaming	0.76 (0.71)	0.79 (0.72)	0.54 (0.66)	0.78 (0.71)	0.76 (0.70)	0.73 (0.75)	0.88
Stressful life events (last 6 months, range = 0–32)	7.48 (4.23)	7.58 (4.18)	6.67 (4.56)	7.55 (4.58)	7.18 (3.80)	8.28 (4.95)	0.10
	n (%)	n (%)	n (%)	n (%)	n (%)	n (%)	
Specific stressors ^c (last 6 months, binary yes/no)							
Financial problems	284 (63)	248 (62)	36 (71)	68 (72)	159 (60)	57 (63)	0.11
Family conflict	277 (62)	253 (64)	24 (47)	49 (52)	175 (66)	53 (59)	0.04
Credit card debt	187 (42)	164 (41)	23 (45)	37 (39)	113 (43)	37 (41)	0.84
Conflict with a partner	180 (40)	160 (40)	20 (39)	39 (41)	102 (39)	39 (43)	0.70
Problems/difficulties with a close friend	166 (37)	151 (38)	15 (29)	37 (39)	91 (34)	38 (42)	0.37
Difficulties with people at work	161 (36)	148 (37)	13 (25)	33 (35)	96 (36)	32 (36)	0.97
Family had financial problems	158 (35)	144 (36)	14 (27)	29 (31)	100 (38)	29 (32)	0.38

^a If a participant provided a response to at least one item on a scale, they were included for analysis^b One participant was missing data on this scale^c Item for “partner died” was excluded due to non-occurrence

Table 3 HYM 2.0 cohort ($N = 448$) substance use by HIV status and race

Variables	Categories	Wave 1 ($N = 448$)	HIV negative ($n = 397$)	HIV positive ($n = 51$)	p value	Black ($n = 94$)	Hispanic ($n = 264$)	Multi-racial/ethnic ($n = 90$)	p value
Alcohol use	Lifetime	n (%) 421 (94)	n (%) 373 (94)	n (%) 48 (94)	0.96	n (%) 89 (95)	n (%) 249 (94)	n (%) 83 (92)	0.73
	6 months	392 (88)	348 (88)	44 (86)	0.78	80 (85)	234 (89)	78 (87)	0.65
Tobacco use	Lifetime	325 (73)	288 (73)	37 (73)	1.00	64 (68)	196 (74)	65 (72)	0.52
	6 months	204 (46)	178 (45)	26 (51)	0.41	38 (40)	120 (45)	46 (51)	0.35
Marijuana use (non-Rx)	Lifetime	380 (85)	335 (84)	45 (88)	0.47	83 (88)	221 (84)	76 (84)	0.56
	6 months	321 (72)	282 (71)	39 (76)	0.42	79 (84)	184 (70)	58 (64)	< 0.01
	< 21-year user	98 (22)	90 (23)	8 (16)	0.47	17 (18)	62 (23)	19 (21)	0.65
Poppers use	Lifetime	189 (42)	159 (40)	30 (59)	0.01	28 (30)	124 (47)	37 (41)	0.01
	6 months	114 (25)	94 (24)	20 (39)	0.02	14 (15)	83 (31)	17 (19)	< 0.01
Cocaine use	Lifetime	149 (33)	126 (32)	23 (45)	0.06	30 (32)	90 (34)	29 (32)	0.90
	6 months	85 (19)	71 (18)	14 (27)	0.10	18 (19)	51 (19)	16 (18)	0.95
Other drugs use (non-Rx) ^a	Lifetime	227 (51)	194 (49)	33 (65)	0.03	42 (45)	141 (53)	44 (49)	0.32
	6 Months	138 (31)	115 (29)	23 (45)	0.02	29 (31)	83 (31)	26 (29)	0.90
Drug test results (marijuana) ^b	Positive	196 (44)	172 (44)	24 (49)	0.5	52 (57)	101 (39)	43 (48)	0.01
Drug test results (cocaine) ^b	Positive	16 (4)	12 (3)	4 (8)	0.07	6 (7)	6 (2)	4 (4)	0.16
Total positive drug tests ^b	0 drugs	226 (51)	206 (53)	20 (41)	< 0.01	37 (40)	145 (56)	44 (49)	0.09
	1 drug	180 (41)	162 (41)	18 (37)		44 (48)	96 (37)	40 (44)	
	2+ drugs	35 (8)	24 (6)	11 (22)		11 (12)	18 (7)	6 (7)	
Problem alcohol use (last 6 months) ^c	No advice needed	229 (58)	203 (58)	26 (59)	0.67	50 (62)	129 (55)	50 (64)	0.16
	Need simple advice	126 (32)	110 (32)	16 (36)		22 (28)	83 (35)	21 (27)	
	Need brief counseling	19 (5)	18 (5)	1 (2)		7 (9)	10 (4)	2 (3)	
	Need evaluation for dependence	18 (5)	17 (5)	1 (2)		1 (1)	12 (5)	5 (6)	
Problem marijuana use (last 6 months) ^d	No marijuana misuse	195 (61)	169 (60)	26 (67)	0.66	45 (57)	119 (65)	31 (53)	0.64
	Mild marijuana misuse	74 (23)	66 (23)	8 (21)		19 (24)	40 (22)	15 (26)	
	Moderate marijuana misuse	22 (7)	21 (7)	1 (3)		5 (6)	12 (7)	5 (9)	
	Severe marijuana misuse	30 (9)	26 (9)	4 (10)		10 (13)	13 (7)	7 (12)	

^a Other non-Rx drugs include heroin, ecstasy, meth, GHB, ketamine, inhalants, hallucinogens, and others^b Missing data were excluded from calculations. There were a total of 7 participants whose drug test results were missing. Missing drug test results by HIV status: 5 HIV negative, 2 HIV positive. Missing drug test results by race: 2 Black, 5 Hispanic^c There were 56 participants who said they had not used alcohol in the last 6 months: 49 HIV negative, 7 HIV positive; 14 Black, 30 Hispanic, 12 multi-racial/ethnic^d There were 127 participants who said they had not used marijuana in the last 6 months: 115 HIV negative, 12 HIV positive; 15 Black, 80 Hispanic, 32 multi-racial/ethnic

Table 4 Access to care, health-related stress, and health status by HIV status and race/ethnicity

Variables	Categories	Wave 1 (N = 448)	HIV negative (n = 397)	HIV positive (n = 51)	p value	Black (n = 94)	Hispanic (n = 264)	Multi-racial/ ethnic (n = 90)	p value
Have a place to go for healthcare ^a	Yes	n (%) 368 (84)	n (%) 324 (83)	n (%) 44 (88)		n (%) 38	n (%) 229 (88)	n (%) 69 (78)	< 0.01
Have a clinical/primary care provider ^a	Yes	246 (57)	207 (54)	39 (78)	< 0.01	52 (58)	150 (59)	44 (52)	0.52
Insurance status ^a	Currently insured	371 (85)	325 (84)	46 (92)	0.14	81 (88)	213 (83)	77 (89)	0.30
Source of health insurance	Parents	178 (41)	167 (43)	11 (22)	< 0.01	37 (40)	106 (41)	35 (40)	0.98
	Medi-Cal/Medicaid/My Health LA	165 (38)	133 (34)	32 (64)	< 0.01	32 (35)	96 (37)	37 (43)	0.55
Overall health ^a	Work/school	58 (13)	56 (15)	2 (4)	0.04	12 (13)	37 (14)	9 (10)	0.63
	Poor	24 (5)	20 (5)	4 (8)	0.55	3 (3)	18 (7)	3 (3)	0.04
	Fair	113 (25)	96 (24)	17 (33)		21 (22)	78 (30)	14 (16)	
	Good	138 (31)	125 (32)	13 (25)		28 (30)	78 (30)	32 (36)	
	Very good	128 (29)	115 (29)	13 (25)		28 (30)	73 (28)	27 (31)	
	Excellent	43 (10)	39 (10)	4 (8)		14 (15)	17 (6)	12 (14)	
Worried about health or body ^a	Yes	249 (56)	221 (57)	28 (55)	0.81	50 (54)	151 (58)	48 (55)	0.78
Chronic health condition ^a	At least 1 chronic health condition	146 (33)	95 (24)	51 (100)	< 0.01	34 (36)	79 (30)	33 (38)	0.31
Most common chronic health conditions ^a	Asthma	68 (15)	61 (15)	7 (14)	0.75	16 (17)	32 (12)	20 (23)	0.05
	HIV	51 (11)	0 (0)	51 (100)	< 0.01	17 (18)	25 (9)	9 (10)	0.07
	Herpes	14 (3)	11 (3)	3 (6)	0.23	1 (1)	10 (4)	3 (3)	0.42
Mental health condition ^a	At least 1 mental health condition	139 (31)	114 (29)	25 (49)	< 0.01	29 (31)	77 (29)	33 (38)	0.35
Most common mental health conditions ^a	Depression	85 (19)	76 (19)	9 (18)	0.79	16 (17)	52 (20)	17 (19)	0.85
	Anxiety	73 (16)	63 (16)	10 (20)	0.51	15 (16)	43 (16)	15 (17)	0.98
	Attention deficit disorder (ADD)	27 (6)	24 (6)	3 (6)	0.96	8 (9)	10 (4)	9 (10)	0.05
Insomnia	Yes	27 (6)	23 (6)	4 (8)	0.57	7 (7)	13 (5)	7 (8)	0.48
Needed/wanted mental health services ^a (last 12 months)	Did not need/want	202 (45)	180 (46)	22 (43)	0.52	46 (49)	116 (44)	40 (45)	0.57
	Needed/wanted and received	71 (16)	65 (16)	6 (12)		17 (18)	38 (14)	16 (18)	
	Needed/wanted but did not receive	172 (39)	149 (38)	23 (45)		30 (32)	109 (41)	33 (37)	
Mental health—scored in clinically significant range ^b (last 7 days)	Depression	51 (11)	44 (11)	7 (14)	0.58	11 (12)	27 (10)	13 (14)	0.55
	Anxiety	46 (10)	40 (10)	6 (12)	0.71	6 (6)	28 (11)	12 (13)	0.29
	Somatization	54 (12)	46 (12)	8 (16)	0.40	13 (14)	30 (11)	11 (12)	0.82

Table 4 (continued)

Variables	Categories	Wave 1 (N = 448)	HIV negative (n = 397)	HIV positive (n = 51)	p value	Black (n = 94)	Hispanic (n = 264)	Multi-racial/ ethnic (n = 90)	p value
Suicide ^a (last 12 months)	Global Severity Index	47 (10)	41 (10)	6 (12)	0.75	10 (11)	24 (9)	13 (14)	0.36
	Ideation	46 (11)	39 (10)	7 (14)	0.38	7 (7)	27 (11)	12 (14)	0.35
	Planned	24 (6)	20 (5)	4 (8)	0.40	3 (3)	13 (5)	8 (9)	0.18
	Attempted	17 (4)	16 (4)	1 (2)	0.47	3 (3)	10 (4)	4 (5)	0.87
Self-injury ^a	Ever	113 (26)	102 (26)	11 (22)	0.52	20 (22)	68 (26)	25 (29)	0.55
	Last 3 months	26 (6)	24 (6)	2 (4)	0.56	5 (5)	13 (5)	8 (9)	0.35
Self-report STIs (lifetime)	No STI diagnoses	175 (39)	170 (43)	5 (10)	< 0.01	34 (36)	111 (42)	30 (33)	0.35
	1–2 STI diagnoses	114 (25)	95 (24)	19 (37)		26 (28)	59 (22)	29 (32)	
	3+ STI diagnoses	104 (23)	77 (19)	27 (53)		20 (21)	66 (25)	18 (20)	
	Not tested/not sure	55 (12)	55 (14)	0 (0)		14 (15)	28 (11)	13 (14)	
STI test results ^c	No STIs	311 (69)	283 (71)	28 (55)	< 0.01	63 (67)	176 (67)	72 (80)	0.03
	1–2 STIs	110 (25)	91 (23)	19 (37)		24 (26)	74 (28)	12 (13)	
	3 STIs	5 (1)	2 (1)	3 (6)		0 (0)	5 (2)	0 (0)	
	Did not test for STI	22 (5)	21 (5)	1 (2)		7 (7)	9 (3)	6 (7)	

BSI Brief Symptoms Inventory^a Missing data were excluded from calculations. Missing data rates on these variables ranged from 1 to 18 participants^b Clinical threshold for BSI-18 global severity index and the 3 subscales (depression, anxiety, and somatization) were T-scores of 63 or above^c STI tests performed were Gonorrhea test (urine, throat, and anal), Chlamydia test (urine and anal), and Syphilis test (urine)

About a third of the cohort (31%) also reported having a mental health condition; the three most common mental health conditions included depression (19%), anxiety (16%), and attention deficit disorder (ADD) (6%). Six percent reported insomnia as a health/mental health problem. The majority (84%) reported having a place to go for healthcare and over half (57%) reported having a primary care provider, with Latino participants being significantly more likely to report having a place to go for healthcare ($p < .01$). YLWH were also significantly more likely to have insurance that was not connected to their parents or family ($p < .01$).

With respect to mental health, over half of the cohort (55%) reported having needed and wanted mental health services during the previous year, of which only 29% accessed mental health services. In addition, roughly 10% scored in the clinically significant range for depression, anxiety, or somatization on the BSI. Moreover, over a quarter (26%) reported having ever engaged in self-injurious behaviors (e.g., cutting), 11% had had suicidal ideation, and 4% had previously attempted suicide.

Finally, nearly half of the cohort (48%) reported having ever been diagnosed with an STI, while 26% tested positive for one or more STIs (other than HIV) at the time of their assessment. Two participants who had thought they were HIV-negative tested positive for HIV. YLWH were significantly more likely to test positive for one or more STIs other than HIV ($p < .01$).

Discussion

In this paper, we describe a community sample of Black, Latino, and multi-racial/ethnic YMSM who live in a highly diverse, urban community. There are a number of key findings that help to advance our understanding of the health and wellbeing of this highly vulnerable population. Namely, we found that a considerably high percentage of the cohort reported experiencing a range of stressful life events and life challenges that are social, emotional, and structural in nature, including food insecurity and hunger, financial hardship of self and family, residential instability, and conflict with family and friends. Some of these challenges are more acute in nature (e.g., conflict with a partner or close friend) while others are likely to be more chronic, such as experiences of poverty, food insecurity and hunger, financial stress, and not having enough money to meet one's basic

needs. Perhaps of greatest concern is the fact that the vast majority of participants reported experiencing racism and homophobia, with Black and multi-racial/ethnic participants being significantly more likely than Latino participants to report experiences of *institutional* and *sexualized* racism.

We also found that a high percentage of participants reported involvement in a range of risk-related behaviors and negative health outcomes, including recent use of tobacco, alcohol, marijuana, and illicit drugs, with nearly half of the cohort testing positive for one or more drug, and nearly half of the cohort reported that their use of alcohol and/or marijuana is a problem as measured by AUDIT and our marijuana misuse scale. Consistent with findings from other studies, Black YMSM were significantly less likely to report use of illicit drugs [31, 75] although they were significantly more likely to report use of marijuana, and YLWH were significantly more likely to report use of poppers, which are often used during sexual intercourse [76–79]. In addition, nearly half of the cohort reported having ever been diagnosed with an STI and over a quarter tested positive for one or more STIs at the time of their assessment. Moreover, over half of the cohort indicated they were worried about their health or body and nearly a third reported having a chronic health and/or mental health condition.

These findings are consistent with the Theory of Minority Stress, a theoretical framework that is increasingly being used to explain the relationships between prejudice, discrimination, and stigma and adverse health outcomes, including drug use and high-risk sexual behaviors [30, 80]. The Theory of Minority Stress posits that individuals from stigmatized social categories, including categories related to race/ethnicity, gender, and/or sexuality, may experience greater and/or chronic levels of stress. That is, individuals from stigmatized social categories are exposed to excess stress as a result of their social (i.e., minority) position [80]. Minority stress is inferred from several sociological and social psychological theories, including theories that discuss the adverse effects of social conditions, such as prejudice and stigma, on the lives of affected individuals and groups [81–85]. Minority stress can be conceptualized as (a) additive to general stressors that are experienced by all people, (b) chronic in nature due to relatively stable underlying social and cultural structures, and (c) socially based, stemming from social processes, institutions, and structures beyond the individual. Youth who experience various sources of stress, including minority

stress, are more likely to experience both short- and long-term health outcomes [86, 87].

We believe stress and stressful life events, including experiences of racism and discrimination, are a key underlying mechanism that increases Black and Latino YMSM's risk for tobacco, alcohol, and illicit drug use, high-risk sexual behaviors, STIs/HIV, and mental health disorders. This assertion is supported by a growing literature suggesting that discrimination, racial bias, and stigma in domains such as employment, housing, education, and legal contexts, as well as more routine experiences of being treated with less respect, are perceived as being stressful [88–90]. Also, these experiences may affect disease risk via mental health pathways and/or through maladaptive behavioral coping mechanisms [4, 91–94]. More research is needed to further explore whether minority stress and other stressful life events are drivers of risk and poor health outcomes, including sexual, emotional, and mental health.

Experiencing these various forms of stress during key developmental periods—from childhood to adolescence and from adolescence to emerging adulthood—may set these young people up for lifelong health disparities, including increased morbidity and early mortality. For example, Schmeelk-Cone and Zimmerman (2003) examined patterns of stress longitudinally in a sample of African American adolescents using a cluster-analytic approach. Differences among the trajectory clusters were examined using psychosocial outcomes and behaviors. These investigators found that adolescents with chronic levels of stress reported more anxiety and depression, engaged in antisocial behaviors, and reported less active coping than youth with other trajectories. Adolescents with low levels of stress over time reported fewer mental health problems, perceived more social support, and were more likely to graduate from high school than those with higher stress levels over time. Only a few studies have examined patterns of stress longitudinally to both characterize common sources of stress and examine the relationship between these stressors with short- and long-term health outcomes and disparities [86, 87]. Moreover, little research has examined the structural, social, emotional, and behavioral antecedents or consequences of different stress trajectories of high-risk populations, including YMSM and YMSM of color [95]. Further exploration of these issues in diverse groups of YMSM can help us better understand some of the differences we see in experiences of discrimination, stress, substance use,

and other health behaviors in different subgroups of YMSM.

It is important to note a number of potential limitations of the study. First, this sample was recruited from public venues and social media and therefore should not be considered a representative sample of the Black, Latino, and multi-racial/ethnic YMSM population. YMSM are, however, super users of social media [96, 97], including the social media sites from which we recruited, and we therefore believe this is as representative a community sample as one can recruit. Second, the majority of the behaviors reported in this paper were self-reported by participants. While these self-reported data could either under- or over-estimate the true occurrence of these behaviors, there is clear evidence that suggests that this and other high-risk populations do accurately report their involvement in risk-related behaviors [98]. In addition, the use of computer-assisted self-interviewing software allows participants to record their answers confidentially, thereby minimizing biases in social desirability [99, 100].

Finally, we believe more research is needed to examine the relationship between acute versus chronic forms of stress—such as social and structural barriers, and experiences of racism, homophobia, and other stressful life events—and social, emotional, behavioral, and health outcomes in this and other at-risk and vulnerable youth populations, to both characterize developmental origins of health and disease and to prevent long-term poor health outcomes and health disparities across the lifespan. For example, Luthar has called resilience a construct with two distinct dimensions: significant adversity and positive adaptation, and thus should be studied within the context of the risk being studied and the index population [101]. Specifically, if a particular condition (e.g., discrimination, stigma) confers high-risk for some outcomes (e.g., mental health, HIV risk) within certain populations (e.g., YMSM of color) then focusing on those aspects of resiliency that address those conditions and risks should be prioritized over other aspects of resiliency. In this context, social support would therefore be considered essential given its ability to offset the negative outcomes of discrimination and stigma. More research is needed to better understand how protective factors, such as social support, resilience, and coping, can serve as buffers against the types of acute and chronic stressors reported in this paper, as well as research to inform the development of culturally

tailored interventions to help these young people achieve their very best throughout their lives.

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